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Assessment and Measurement of Fiscal Condition Index for Iran

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Abstract

This paper presents a framework for assessing the fiscal condition index (FCI) and develops a concept to assess fiscal condition of governments and implements it into Iran government as an oil exporting country. The concept consists of four dimensions -revenue, expenditure, budget balance, and debt structure-and each dimension has its own indicators. There are seven indicators examined namely expenditure to GDP ratio, non-oil revenue to total revenue ratio, public debt to GDP ratio, non-oil balance to non-oil GDP ratio, oil revenue to total revenue ratio, capital expenditure to total expenditure ratio , and overall budget balance to GDP ratio. Assessing cycle of fiscal indicators shows that these indicators have been pro-cyclical individually. Then, fiscal policy not only doesn't have stabilizing role in macroeconomic conditions, but also increases the macroeconomic fluctuations. Likewise, the results indicate that Iran's fiscal condition index is very volatile and pro-cyclical. Also, assessing this index demonstrate that Iran's government has experienced fiscal health in 2003, 2006, and 2008. However, it has been in fiscal stress in 2012 and 2013. Iran's governments did not have fiscal policy discipline in the period 1990-2011. This is because the oil price is the leading indicator of fiscal condition index. In addition, sanction is one of the reasons that caused decrease of FCI in 2010-2012.

***Keywords**: fiscal condition index, fiscal policy, fiscal health*

***JEL Classifications**: H70, H61, H63, H20*

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1. Introduction

The fiscal pressures faced by the central cities of USA in the late 1970s and early 1980s spawned numerous efforts across disciplines and organizations to assess local government fiscal health and fiscal performance, and in some cases, to develop indices of these conditions (Honandle et al., 2004). Economists working in this area primarily targeted environmental factors directly affecting revenues and expenditures (Ladd and Yinger, 1989; Bahl, 1984; Advisory Commission on Inter governmental Relations [ACIR] 1971, 1979).

The ifscal health of government is important and a number of researchers have examined fiscal condition in state and local governments using various dimensions and indicators. Thus, there is a universal agreement that fiscal condition health is important to the effective, efficient, and economical delivery of public services.

Many scholars have attempted to define fiscal health and fiscal condition index during the last few decades (Arnett, 2014; Hendrick, 2011; Wang et al., 2007; Chaney et al., 2002).

Generally, the fiscal health is defined as the ability of the government to meet its financial and service obligations (Honandle et al., 2004). Therefore, the Governmental Accounting Standards Board (GASB) defines a government's fiscal condition as a composite of a government's fiscal health and its ability and willingness to meet its financial obligations and commitments to provide services (2012). Also, Berne & Schramm (1986) proposed a definition of fiscal condition as the probability that a government will meet its financial obligations to creditors, consumers, employees, taxpayers, suppliers, constituents, and others as these obligations come due. Groves et al. (1981) and Nollenberger et al. (2003) defined fiscal condition as a government's ability to finance its services on a continuing basis.

Kloha et al. (2005) and Jones & Walker (2007) defined fiscal condition in the context of fiscal distress and explained it as a condition in which

governments cannot meet the standards in operations, debt, and the needs of society for several consecutive years, whereas Jones &Walker (2007) interpreted fiscal distress as an inability to maintain pre-existing levels of services to the community.

Arnett (2014), Jimenez (2009) and Hendrick (2004) proposed a similar definition and explained that fiscal condition describes a government's ability to meet its financial and service obligations, so that financial obligations include paying state employees' salaries and interest on outstanding debt and funding pensions and service obligations including providing sufficient funds for education and health care. If a state is able to meet these obligations, it has fiscal health and is in a good fiscal condition; if not, it may experience fiscal stress.

2. Fiscal Condition and Benchmarking

The ongoing challenges to governments' abilities to meet their financial and service obligations underscore the need for a reliable and straightforward method to compare states' finances. However, there is a little agreement on what dimensions and indicators definitively represent the concept of fiscal condition. Methods to compare states' finances, such as credit ratings, already existed; though, there is still a need for transparent and nuanced measures. Of course, measurement methods depend on data availability, researcher's preferences, and the unit of analysis. Measures of fiscal condition often focus on one dimension. For example, using the year-end unreserved budget balance as a measure of fiscal condition (Jimenez 2009; Rubin and Willoughby 2009; Chaney, Mead, and Schermann 2002) or non-oil primary deficit to non-oil GDP ratio as a measure for comparing governments of oil exporting countries is common. These measures provide a sense of a government's budget solvency, but not its cash, long-run, or service-level solvency. The tendency to focus on one dimension of fiscal condition, often budgetary solvency, leads

to multiple measures of fiscal condition; none of which provides a comprehensive understanding of a state's fiscal condition (Arnett, 2014).

Honandle et al. (2004) proposed a ten-point test of fiscal condition index which was developed by Kenneth W. Brown (1993). This tool describes the fiscal condition of a government in a set of ten simple ratios, each ratio focusing on one of four primary aspects of ifscal health including: revenue. ، expenditures, operation position, and debt structure. They suggest that ten ratio measures will be computed, equally weighted, and aggregated to provide an overall picture of a government's fiscal condition. Wang et al. (2007) defined fiscal condition as the level of financial solvency which includes the dimensions of cash solvency, budget solvency, long-run solvency, and service-level solvency.

Cash solvency is concerned with a government's liquidity and is the ability of the government to generate enough cash over thirty or sixty days to meet its debts or its bills (Arnett, 2014; Groves et al., 1981). This definition reflects the liquidity of a state government and the effectiveness of its cash management system (Jacob and Hendrick, 2013; Wang et al., 2007; Hendrick, 2011). Budgetary solvency is concerned with a government's ability to generate sufficient revenue to fund its current or desired service levels without causing a deficit (Arnett, 2014; Groves et al., 1981). Long-run solvency is a government's ability to pay for all its costs including those that may occur only every few years or many years into the future (Arnett, 2014; Groves et al., 1981). While cash and budget solvency look at short-term financial management, long-run solvency looks at a government's management of longer-term obligations, such as meeting pension obligations to current and future retirees. Service-level solvency is the government's ability to provide services at the level and quality that are required and desired by its people. The definition proposed by Groves et al. (1981) and Nollenberger et al. (2003) above is adopted by Wang et al. (2007).

There are many different possible fiscal indicators, and they can be combined in multiple ways (Chaney, Mead, and Schermann 2002; Kamnikar,

Kamnikar, and Deal 2006; Clark 1977; Howell and Stamm 1979; Morgan and England 1983). Wang et al. (2007) used eleven fiscal indicators to measure cash, budget, long-run, and service-level solvencies at the state level that combine these indicators with equal weights to create a composite measure of fiscal condition. Nevertheless, the weights applied by Arnett (2014) -for these dimensions- are according to his judgment. Accordingly, these weights are neither used in other literatures on this issue, nor they stem from quantitative analysis.

Ritonga et al. (2012) used nineteen fiscal indicators to compare Indonesia local government and argued that in defining the government's financial condition, it should be derived from the objectives of a nation, since the fiscal condition is the result of a local government effort to achieve a nation's objectives. Consequently, they offer six dimensions namely short-term solvency, long-term solvency, budgetary solvency, service-level solvency, financial flexibility, and financial independence. Each dimension has its own indicators that are totally nineteen indicators examined in this study. They used to determine the importance of each dimension composing the financial condition analytical hierarchy process (AHP). To determine the weights, they used 162 respondents. Furthermore, they showed that the weight of the dimension is different. Hence, their results explained that the dimension of long-term solvency and short-term solvency are considered as the two most important and service level solvency as the least important.

Since Brown's indicator requires very few data for analysis of ifscal condition, this paper uses the model outlined by Honandle et al. (2004) that was developed by Kenneth W. Brown (1993). On the other hand, Iran has been considered in this study. Moreover, definition of the government's fiscal condition should be derived from the objectives of a nation based on Ritonga et al. (2012). So, this paper develops a concept to assess fiscal condition and implements the concept into Iran's governments. As a result, it has used a

seven-point test with regard to the structure of oil economy and data limitations availability.

This paper seeks to construct fiscal condition index for Iran and is organized as follows. Following this introduction and benchmarking of fiscal condition index, Section II discusses the methodology used to combine the data into estimation of an index of fiscal conditions. This study has chosen to use principal components analysis, as it does not involve estimation – it is derived from a linear transformation of the data series – and accordingly, does not impose any structure. Section III gives assessing fiscal performance with using the quarterly time series data in the period 1990-2013 and finally Section IV analyzes the fiscal condition index of Iran in business cycle and different administrations, and discusses the results and offers some conclusions.

3. Which Variables to Include in a Fiscal Condition Index?

Many of studies have focused on debt structure for assessing fiscal condition index. As previously mentioned, measurement methods for assessing fiscal condition index depend on data availability and researcher's preferences. On the other hand, the selected variables should be used according to the economic structure of the countries. Therefore, this paper analyzes fiscal condition index for Iran, according to these subjects; four measures have been considered including revenues, expenditures, budget balance, and debt structure based on Brown's studies, as well as data availability limitations especially in operation position and also considering the structure of oil economy to measure governments' fiscal conditions. Table 1 defines the variables used to measure fiscal condition index which are seven fiscal variables.

Table 1: Financial Indicators Used to Measure Fiscal Condition Index

	Variables
Revenue	Oil revenue to total revenue ratio
	Non-oil revenue to total revenue ratio
Expenditure	Expenditure to GDP ratio
	Capital Expenditure to total expenditure ratio
Budget Balance	Overall balance to GDP ratio
	Non-oil balance to non-oil GDP ratio
Debt Structure	Public debt to GDP ratio

4. Data and Fiscal Performance

This section focuses on assessment of the fiscal indicators that are used in the dimension of fiscal condition index. These indicators include overall balance to GDP ratio, non-oil balance to non-oil GDP ratio, expenditure to GDP ratio, the share of capital expenditure from total expenditure, non-oil revenue to total revenue, oil revenue to total revenue ratio, and public debt to GDP ratio. In addition, in this section the study will consider the behavior of these indicators in business cycle in Iran. Then, the quarterly data is used from the economic time series database of the central bank of Iran in the period 1990-2013. Also, two Hodrick-Prescott (HP) filters estimated with $\lambda = 677$ and 1 are used to determine the long term trend and cycle of these indicators.

4.1. Government expenditure to GDP ratio

The average value of the government expenditure to GDP ratio was 21.1 percent with a minimum of 15.29 percent in 2012 and a maximum of 25.39 percent in 2006 for Iran during 1990-2012. On the other hand, the investigation into the behavior of this variable in business cycles shows that in 48% of the boom period and 50% of the bust period, the behavior of the government has been pro-cyclical (Figure A-1).

4.2. Capital expenditure to total expenditure ratio

Assessing the share of capital expenditure to total expenditure indicates that the average value for Iran during that period was 21.4 percent with a minimum of 8.1 percent in 2013 and a maximum of 29.8 percent in 2008. In addition, this value has been reduced about 70 percent after financial sanctions which have been applied progressively to Iran since 2011.

On the other side, the evaluation of the short-term behavior of the real capital expenditure[1] shows that a major share of business cycle[2] in the economy of Iran (60%) was pro-cyclical in the period 1990-2013 (Figure A-2). Moreover, using Concordance index shows that this variable is a leading indicator of real GDP cycles with a lag of two seasons (maximum concordance equal to 0.78). This means that real capital expenditure had a positive impact on real GDP in the short term. Hence, the assessment of the real capital expenditure nature in the business cycle and being a leading indicator of this variable in comparison with real GDP confirm that Iran's governments have not played a stabilizing role in facing macroeconomic fluctuations. Likewise, the ratio of the capital expenditure variable standard deviation on the average trend in the range of 4-year presidency suggests that the smoothest behavior in the capital expenditure section was during the tenth presidency period (the second term of President Ahmadinejad) and the most volatile was related to the fifth period (the first term of President Rafsanjani) which were exactly after the war between Iran and Iraq.

4.3. Oil revenue to total revenue ratio

Assessment of government of Iran's dependency on oil revenue indicates that 53% of the government revenue was related to oil sector in the period 1990-2011. However, this dependency decreased after the international trade and financial sanctions which have been applied progressively to Iran since 2011. Of course, in this calculation, it has been shown that if

1. It is adjusted consumer price index and consumer services based on the year 2011.
2. To determine a dating for Iranian business cycles we used the study carried out by Einian, M. & Barakchian S. M. (2014).

the government had used Oil Stabilization Fund, Iran's government dependency on oil revenue would increase 60 percent.

In addition, evaluating the cycle of this indicator shows that 74 and 54 percent of the periods of bust and boom respectively was pro-cyclical over the period 1990–2013 (Figure A-3).

4.4. Non- oil revenue to GDP ratio

Decreasing the dependency on oil revenues and increasing the importance of tax revenues are the goals that have always been the concern of economic policy in Iran. The problem has been mentioned in the country's five-year development plans. But in the situations where financial resources were obtained from oil, the major share of the government's financial resources was allocated to itself (an average of 60% in the period 1990-2012); focus on the tax system has always been in the shadow of these revenues. The share of tax revenues of the current expenditure as one of the indicators to evaluate the efficiency of the tax system shows this fact that the structure of the tax system in Iran is not desirable (an average of 40% in the period 1990-2012) and also contrary to the objectives in the defined five-year development plans.[1]

The assessment of the revenues tax to GDP ratio in the business cycle shows that the average of 56%, 37.5% and 12.5% are pro-cyclical, counter-cyclical, and a-cyclical respectively and the government only had contractive fiscal policy of 31% in the boom and expansionary fiscal policy of 25% in bust (Figure A-4).

Assessing the average of real tax revenues shows that this index in several governments was not the same and the highest taxes have been received in the

1. Paragraph "a" of the Fourth Development Plan (2005-2010): The government is obliged to increase the contribution of supplied funds from non-government revenues in the way that at the end of the fourth plan, the government spending would be provided completely through tax and other non-oil revenues.
   Paragraphs "a", "b" and "c" of Article 117 of the Fifth Development Plan (1390-1394), emphasize on the following issues:
   - ≠ #At the end of the program, Tax to GDP ratio reaches at least 10 percent contingent with no increase in the rate of direct taxes and by expanding the tax bases.
   - ≠ The proportion of public revenues increases by the annual average of 10% except for oil and gas revenues to credit costs.

tenth (the second term of Ahmadinezhad presidency) and the seventh (the first term of Khatami presidency) governments respectively. But the most tax fluctuations are related to Ahmadinezhad's administration (Figure A-5).

4.5. General Government Net Lending/Borrowing to GDP ratio

General Government Net Lending/Borrowing (Overall Balance to GDP ratio) has been highly volatile in Iran. Nevertheless, the international trade and financial sanctions which have been applied progressively to Iran since 2011 have affected the economy especially on overall balance to GDP ratio.

This indicator had 62% growth in the boom and 56% decline in the bust and in total 60% of the business cycle has been pro-cyclical (Figure A-6).

On the other hand, assessing fiscal balance in different governments of Iran indicates that real overall balance has been highly volatile during 1990-2013. In addition, after the second term of Khatami presidency, Ahmadinezhad's administration has been most volatile and the first term of Khatami presidency has been least volatile (Figure A-7).

Also, this indicator had a negative correlation with the share of oil revenues in bust (-0.56) and a positive correlation in the boom (0.44). This means that the deficit was increased when increasing the share of oil revenues in the budget was in bust. However, by increasing the share of oil revenues in the boom, budget balance increased. This means that the government was able to improve the budget deficit with the increase of the share of oil revenues in the boom.

4.6. Non-oil balance to non-oil GDP ratio

An assessment of the underlying ifscal policy stance on the basis of the overall balance could therefore be misleading. For this reason, other indicators are needed to guide ifscal policy and to assess the underlying ifscal stance, su as the non-oil balance/non-oil GDP ratio, an indicator which isolates the budget balance from oil price developments.

The non-oil primary balance therefore excludes oil revenue that originates from abroad and is a better measure of the impact of fiscal policy on the domestic demand than the overall primary balance. This indicator is also a measure for the assessment of fiscal sustainability (Barnett and Ossowski, 2002).

Evaluating the short-term behavior of non-oil budget deficit to non-oil GDP ratio shows that in 46% of boom and 59% of bust, this ratio has been pro-cyclical in the period of 1990-2013. So the ratio (52%) of business cycles has been pro-cyclical (Figure A-8). Furthermore, fiscal sustainability is weak in Iran. Likewise, there is a negative correlation between this variable and the share of oil revenue from the total revenue ratio (-0.4). In other words, if the share of oil revenues to government revenues increases, non-oil budget deficit to non-oil GDP ratio will decrease. While, this ratio has been raised by increasing the share of non-oil revenues to total revenues (correlation coefficient is 0.38). This means, the government could decrease its non-oil budget deficit only by the increase in the share of oil revenues in the budget.

4.7. Gross Public Debt to GDP ratio

One of the common methods of the government financing is borrowing from the banking system in Iran that allocated 7% of the monetary base growth to itself in the period 1990-2012. Also, the government borrowings from the banking system at 44 and 31 percent in the boom and bust were pro-cyclical and a-cyclical respectively. Average debt of the public sector to the banking system, also with 35% share in President Ahmadinezhad's administration was the highest amount (Figure A-9).

The public sector debt has been reduced after international financial sanctions. The reasons could be the lack of access to external finance so that the government foreign debt to GDP ratio reached from 5.4% in 2010 to 1.9% in 2012. Of course, the public debt to GDP ratio raised from 13.2 to 19.7 percent - increased about 6% on average - if is calculated by including

withdrawal from Oil Stabilization Fund as government borrowing from future generations over the period 2003-2010.

5. Fiscal Condition Index in Iran

As noted above, in this assessment, four measures have been considered including revenues, expenditures, budget balance, and debt structure. Nevertheless, these measures have seven subdivisions including overall balance to GDP ratio, non-oil balance to non-oil GDP ratio, expenditure to GDP ratio, the share of capital expenditure from total expenditure, non-oil revenue to total revenue, oil revenue to total revenue ratio and the public debt to GDP ratio. In the first step, the stationarity of all series have been tested. To do this, Augmented Dickey–Fuller (ADF) test is used. The results imply that all variables are stationary. The results reported in Table 2 show that all of the indicators appear to be generally stationary at 1 percent level (5 percent in the case of non-oil revenue to GDP ratio).

In the second step, all of the indicators should be standardized[1] to allow a meaningful comparison. Additionally, these ratios should be standardized by using the mean and the standard deviation to compute z scores. Then, after considering standardized figures, the sum of the non-oil revenue to total revenue and oil revenue to total revenue ratio equals revenue, the sum of the

1.These fiscal indicators are being transformed, i.e. standardized in order to create indicators that are on the same scale and to avoid some of the variables to have greater influence on the index, then due to scale measurement. The variables are standardized by subtracting the sample mean from each individual observation in the sample and further on the difference is divided with the standard deviation of the sample. The standardization of variables is conducted by the formula (1)

$$\frac{X-\mu}{\sigma} \qquad (1)$$

where z is the standardized value or z-score, x is the observation of the variable; μ is the sample mean and σ is the standard deviation of the sample. Standardized variables have normal distribution with zero mean and standard deviation of 1 – N(0,1). Furthermore, as z scores, the fiscal indicators have the same scale and can easily be compared to one another in addition to being added together to create each fiscal dimensions.

expenditure to GDP ratio and the share of capital expenditure from total expenditure equals expenditure, the sum of the overall balance to GDP ratio and the non-oil balance to non-oil GDP ratio equals budget balance. All of the summations have been considered with equal weights. Moreover, four dimensions are obtained including revenue, expenditure, budget balance, and public debt that should have the same weight.

As noted above, different methodologies of FCIs have been developed to construct over time, they can be categorized into two groups including: the equal weighted approach and different weighted approach. In this paper, the focus is on the second approach. Principal Component Analysis (PCA) is one of the common techniques from statistics for simplifying a data set. This means that this method is a standard data reduction technique that extracts common factor from a group of data, removes redundant information, highlights hidden features, and visualizes the main relationships that exist between observations.[1] Then, this method is used to determine the fiscal weighted indicators by Principal Components Analysis. In other words, through this method, four indicators will be reduced to determine the minimum number of components that can account for the correlated variance among these indicators.

To examine the suitability of these data for Principal Component analysis, the Kaiser–Meyer–Olkin (KMO) test and Bartlett's test of sphericity, are performed. KMO is a measure of sampling adequacy to indicate the proportion of common variance that might be caused by underlying factors. High KMO values (higher than 0.6) generally indicate that factor analysis may be useful which is the case in this study (KMO = 0.612). If the KMO value is lower than 0.5, factor analysis will not be useful. Bartlett's test of sphericity reveals

1. PCA can be also called the Karhunen–Loève Transform (KLT), named after Kari Karhunen and Michel Loève.

whether the correlation matrix is an identity matrix, indicating that variables are unrelated. A level lower than 0.05 indicates that there are significant relationships among the variables, which is the case in this study (significance of Bartlett's test is equal 0.00). In other words, the observed significance level is .0000. It is small enough to reject the hypothesis. It is concluded that the relationship among the variables is strong and it is a good idea to proceed with a factor analysis for the data.

In the second step, it will be determined how many factors to use in this analysis. Table 2 reports the estimated factors and their eigenvalues. Only those factors accounting for more than 10% of the variance (eigenvalues >1) are kept in the analysis. So that, from the results obtained eigenvectors presented in Table 2 indicate that there are two different components with eigenvalues greater than 1/0 (eigenvalues = 1.548 and 1.279) which might explain the fiscal condition index. Taken together, PC1 through PC2 explains 70.68 percent of the total variance of the fiscal ratios.

Table 2: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
PC1	1.548	38.711	38.711	1.548	38.711
PC2	1.279	31.977	70.688	1.279	31.977
PC3	.903	22.573	93.261		
PC4	.270	6.739	100.000		

Source: Research calculations (SPSS software)

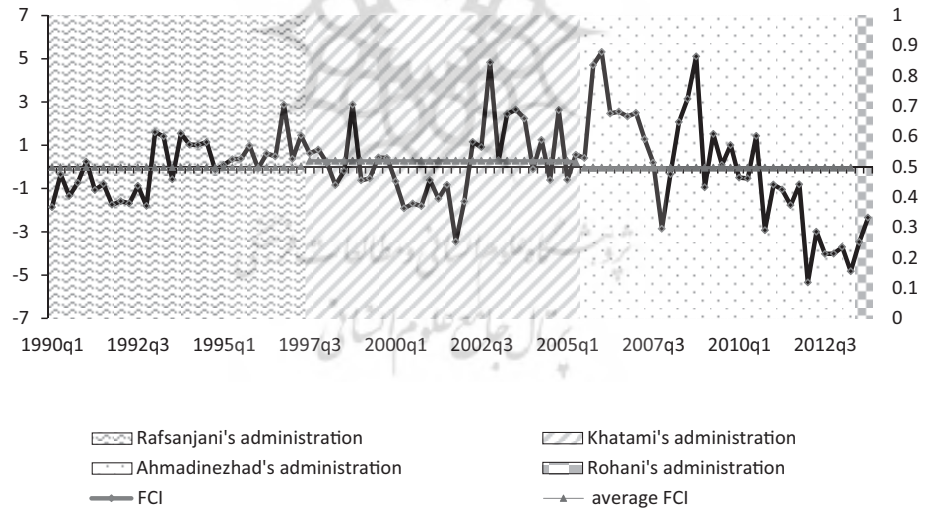
As presented in Table 2, the PC1 explains the greatest variance in the data.

Table 3: Component Matrix

	Component	
	PC1	PC2
Revenue	.307	.538
Expenditure	.875	.300
Balance	-.827	.443
Debt	-.074	.838

Source: Research calculations (SPSS software)

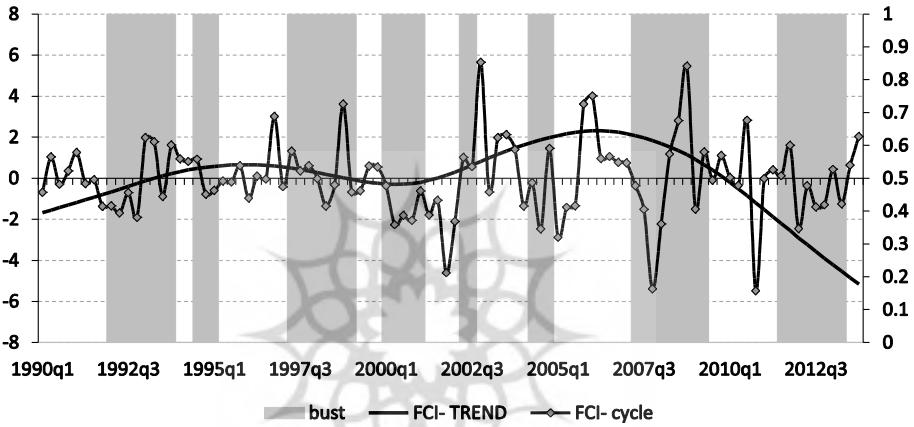
Figure1: Fiscal Condition Index indifferent presidencies - 1990-2012



In this instance, the first principal component (PC1) is employed as an aggregate measure of the government's fiscal condition. The main strength or

the construction of the government's fiscal condition index by using the method of principal component analysis is that the weights of the index are based upon the inner correlation of all the individual measures. The index of fiscal condition for the public sector of Iran for the period of 1990:Q1 to 2013Q4 is shown in figure 1.

Figure 2: Cycle and trend of Fiscal Condition Index 1990-2013



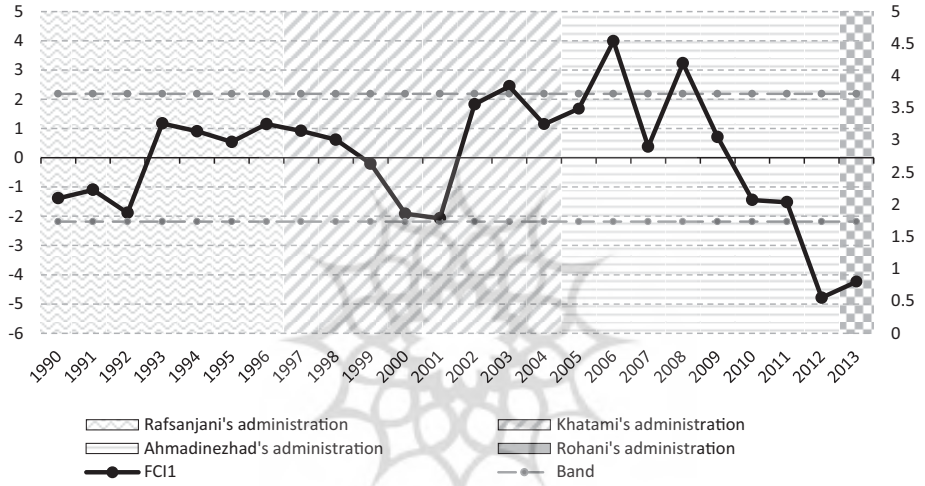
FCI is pro-cyclical in 53% of business cycle and fiscal condition is expansionary in 54% in boom and fiscal condition is contractive in 51% in bust (Figure 2.)

The assessment of lead-lag structures between the oil price and fiscal condition index has demonstrated that the oil price is a leading indicator -4 seasons- for fiscal condition index.

The early warning system enables government officers to identify the fiscal distress problem. In other words, an early warning system according to the seven point scale is developed to help the government officials to identify fiscally troubled localities to select suitable corresponding strategies under different economic situations. The critical value used for classification is a one-half standard deviation below median (C_1), and a one-half standard

deviation above median [(C_2) Ho and Huang, 2014]. If FCI is greater than (C_1), the government is in good fiscal health with no distress situation and if FCI is less than (C_1), the government is in fiscal stress. If FCI is between (C_1) and (C_2), the government is in a moderate situation with a little fiscal distress. The monitoring signals of fiscal health are shown in Figure 3.

Figure 3: Annual Fiscal Condition Index - 1990 - 2013



The results of this assessment indicate that Iran's government has experienced fiscal health in 2003, 2006 and 2008, while it has been in fiscal stress during 2012 and 2013. On the other hand, the assessment of the average of fiscal condition index in different presidency terms indicates that President Khatami's administration has been in good fiscal condition in comparison with other governments. Volatility of FCI (the average to the standard deviation ratio of FCI trend) is the lowest in President Ahmadinezhad's administration and the highest in President Khatami's administration. In addition, the estimation of annual FCI demonstrates that this index decreased

in 2010-2012, in spite of the oil price increase in this period. It seems that sanction is one of the reasons that caused a decrease in this index.

6. Conclusion

The purpose of this paper is twofold: First, the improvement of the measurement of fiscal condition and to assess the government's finance and performance in oil exporting countries, and second, using this index for Iran. So, this study uses the model outlined by Honandle et al. (2004) that was developed by Kenneth W. Brown (1993). This method has some advantages such as relying on audited, publicly available data in addition to having an easily reproduced and transparent methodology. The study offers a concept to analyze the fiscal condition of countries which will be an improvement on the previous studies. Due to the definition of the government's fiscal condition, it should be derived from the objectives of a nation and environment as the fiscal condition is the result of a government effort to achieve a nation's objectives. Since this paper has focused on Iran which is an oil exporting country, these indicators are according to an oil economic structure. Then, seven fiscal indicators were used for assessing the fiscal condition. Fiscal indicators that were used in calculation of fiscal condition index include expenditure to GDP ratio, non-oil revenue to total revenue ratio, public debt to GDP ratio, non-oil balance to non-oil GDP ratio, oil revenue to total revenue ratio, capital expenditure to total expenditure ratio, and overall budget balance to GDP ratio.

The findings show that Iran's FCI is pro-cyclical and Iran's governments do not have enough discipline in fiscal policy. This means that governments do not have any stabilizing roles in facing macroeconomic fluctuations. Likewise, assessing this index demonstrates that Iran's government has experienced fiscal health in 2003, 2006 and 2008, while it has been in fiscal stress during 2012 and 2013.

On the other hand, oil price is a leading indicator to FCI (2 seasons), while this index is a leading indicator to business cycle (2 seasons). Also, sanction is one of the reasons that cause a decrease in FCI in 2010-2012.

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Appendix1:

Figure A -1: Total expenditure to GDP ratio

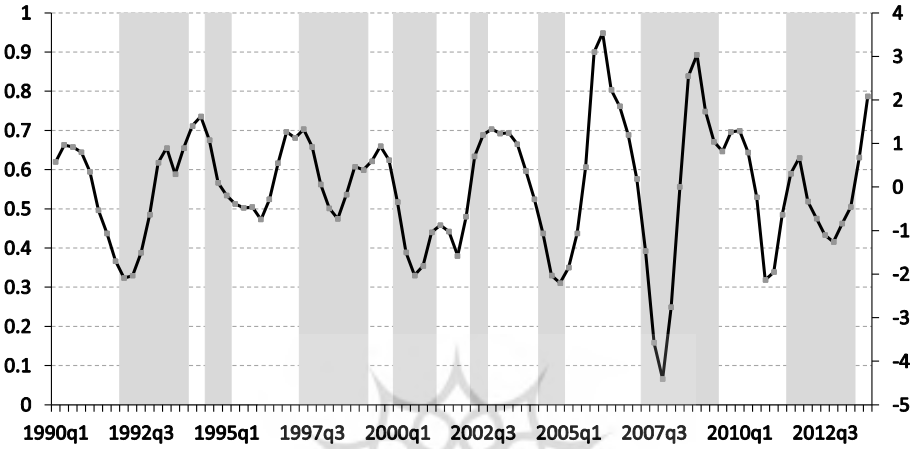

Figure A -2 : Capital expenditure to total expenditure ratio

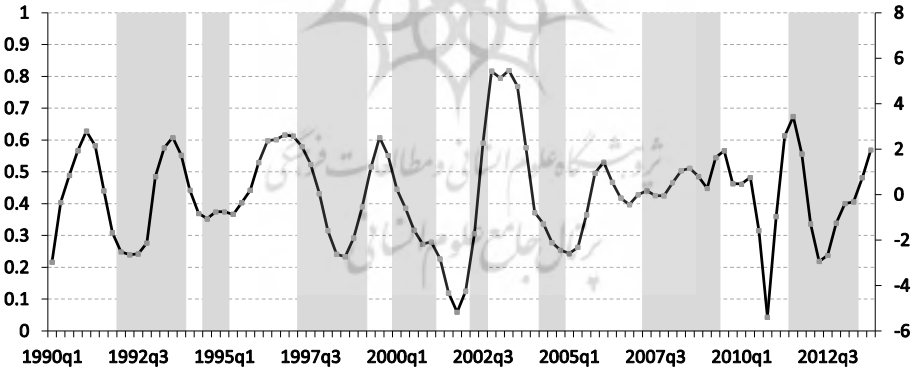

Figure A - 3: Oil revenue to total revenue

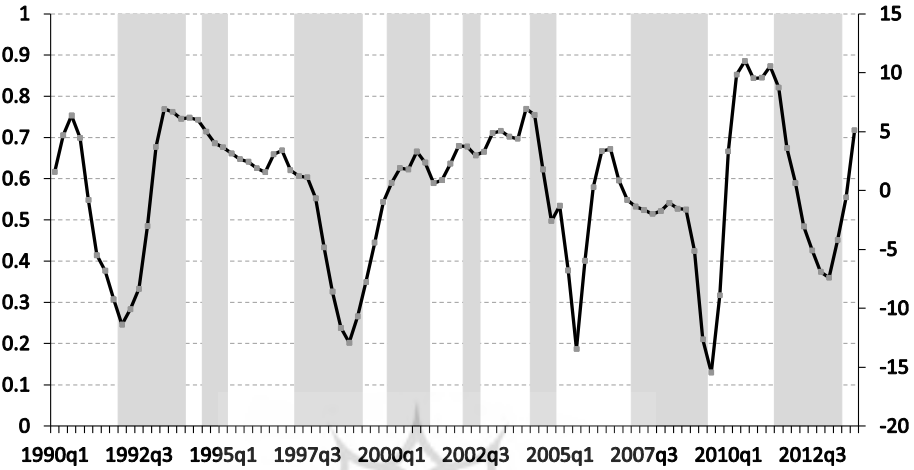

Figure A - 4: Non - oil revenue to total revenue

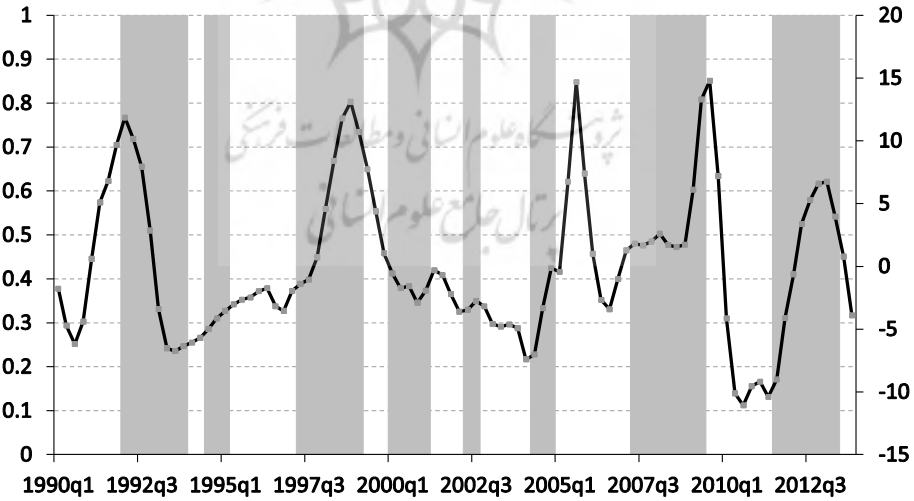

Figure A - 5: Volatility of real tax revenue

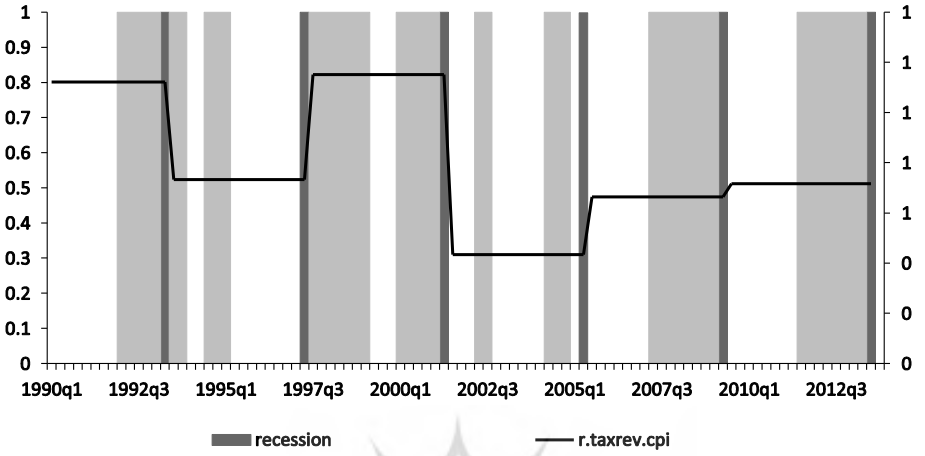

Figure A - 6: Overall balance to GDP ratio

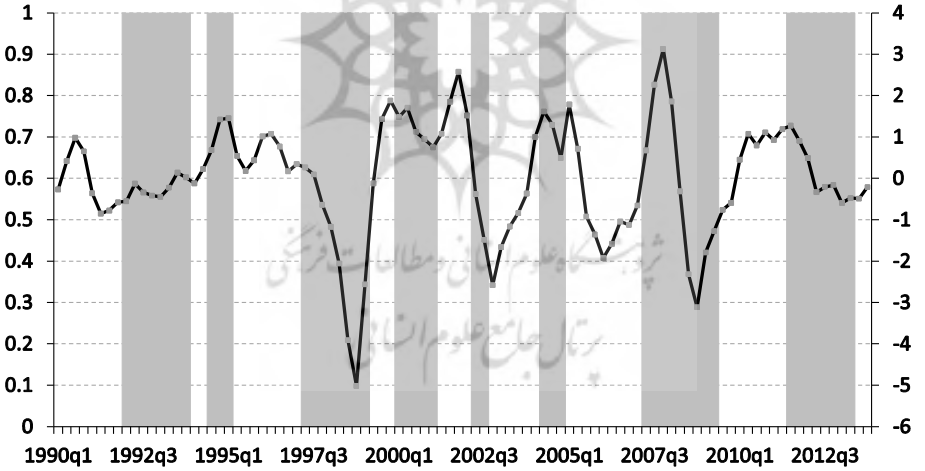

Figure A - 7: Volatility of real overall fiscal balance

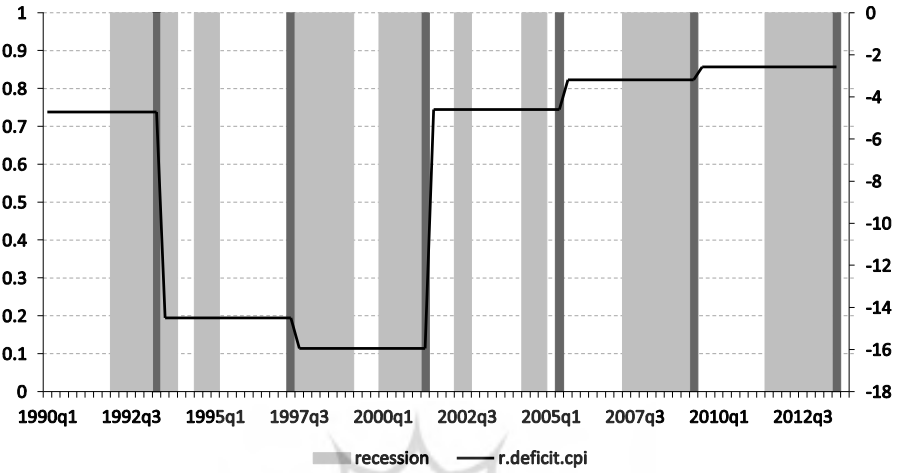

Figure A - 8: Non - oil balance to non oil - GDP

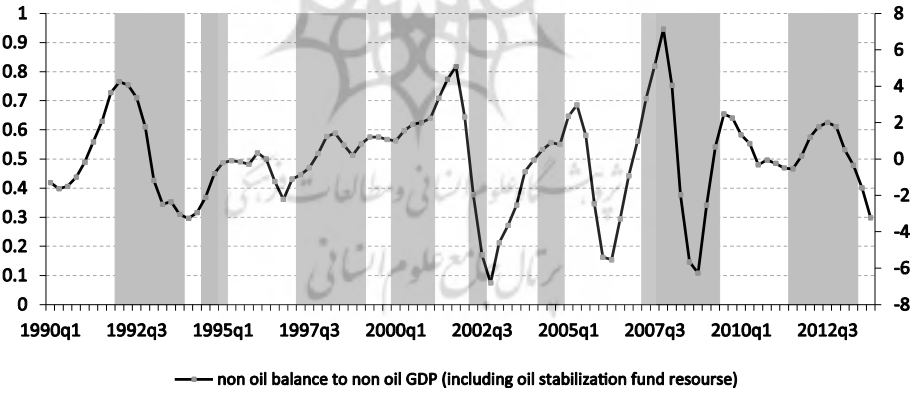

Figure A - 9: Public debt to GDP